



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/582,546

04/11/2007

Lutz Dorfmueller

10191/4684

4728

26646

7590

05/07/2009

KENYON & KENYON LLP  
ONE BROADWAY  
NEW YORK, NY 10004

EXAMINER

VALONE, THOMAS F

ART UNIT

PAPER NUMBER

2831

MAIL DATE

DELIVERY MODE

05/07/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,546	<b>Applicant(s)</b> DORFMUELLER ET AL.	
	<b>Examiner</b> THOMAS F. VALONE	<b>Art Unit</b> 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 14, 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended claims 14 and 15 have a "raised pattern" as a new limitation that does not appear in the instant disclosure, cannot be discerned from the original two-dimensional drawing perspective and should be deleted. For examining purposes, the raised pattern is interpreted as any type of form or configuration. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-11, 14, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (WO 2004/097392) in view of Ishida (4,916,384) of record.

Art Unit: 2831

Regarding claims 9-11, 14, 17, (Berger's US equivalent 2007/0158191 application of record paragraph numbers are cited for translation clarity) Berger teaches a sensor for determining the concentration of particles in gases (US equivalent, par. 1) having at least one substrate element and a measuring area between the first and second electrodes (14, US equivalent, par. 33 and Fig. 1-4) with a voltage applied between the electrodes (Fig. 6, 7 and AC signals, US equivalent, par. 42). Berger teaches the first and second electrodes forming an interdigital comb structure (US equivalent, par. 2, 15, 33 and Fig. 1) where at least one measuring electrode has finger electrodes with varying widths (US equivalent, par. 15, Fig. 1-4). Berger further teaches the varying widths by explaining that the width or area of the comb electrodes can vary "at most" up to one-tenth of the distance between the electrodes (US equivalent, par. 15 and 35) as in claim 9. Berger further teaches a measuring electrode that has a raised pattern along a side facing the other measuring electrode (12 or 13, Fig. 2-4) as in the amended claim 14.

Berger does not explicitly teach an asymmetric electric field being formed on the measuring area where the electrodes are not parallel to each other and the distance between them increases or decreases along the length of the electrode.

Ishida, from the same field of endeavor, teaches an asymmetric electric field in the measuring area (13, col. 4, line 3-10), for measuring soot particles (col. 1, line 57) as in claim 17, where the electrodes are not parallel to each other and the distance between them increases or decreases along the length of the electrode (Fig. 4), as in

Art Unit: 2831

claims 9-11. Ishida further teaches one measuring electrode (13, Fig. 4) along the side facing the other measuring electrode (12, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included an asymmetric electric field where the electrodes are not parallel to each other and the distance between them increases or decreases along the length of the electrode, with a structure along the side facing the other measuring electrode as taught by Ishida, in the Berger measuring area by modifying the electrode design, for the benefit of determining the volumetric concentration of soot particles in the measuring area considering conductivity and flow rate, as suggested by Ishida (col. 3, line 50-55 and line 65-67).

5. Claims 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger as modified by Ishida (B-I) as applied to claims 9-12, 14, 17 above, and further in view of Becker (5,858,192).

Regarding claim 13, 15, the teachings of B-I are reviewed above. B-I further teaches a measuring electrode that has a raised pattern along a side facing the other measuring electrode (Berger, 12 or 13, Fig. 2-4) as in the amended claim 15.

B-I does not teach measuring or finger electrodes with a triangular form or regularly arranged geometric shapes.

Becker, from the same field of endeavor, teaches measuring and a group of electrodes with a triangular form (col. 5, line 45-50 and col. 4, line 11), which is a geometric shape regularly arranged.

Art Unit: 2831

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a measuring or finger electrodes with a triangular geometric form regularly arranged in the B-I sensor as taught by Becker, for the benefit of creating a spatially inhomogeneous electric field distribution, as suggested by Becker (col. 5, line 55-60).

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berger as modified by Ishida (B-I) as applied to claims 9-12, 14, 17 above, and further in view of Bosch (6,634,210) of record.

Regarding claim 16, the teachings of B-I are reviewed above.

B-I does not teach a central electrode between the first and second measuring electrode.

Bosch, from the same field of endeavor, teaches a central electrode (guard electrode, col. 7, line 60-65) between the first and second measuring electrode (18, 19, col. 9, line 20-25 and Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a central electrode in the B-I sensor between the first and second measuring electrode, as taught by Bosch, for the benefit of providing a separate ground connection, as suggested by Bosch (col. 7, line 25-30).

### ***Response to Arguments***

7. Applicant's arguments filed 2/18/09 have been fully considered but they are not persuasive.

Art Unit: 2831

8. Regarding the argument that the finger portions of the Berger reference are constant and do not vary, this is not found to be persuasive. The PTO applies the broadest interpretation of the claimed varying width which is also found to have basis in the teachings of Berger. Berger teaches that the electrode width can vary, up to at most one-tenth of the distance of the electrodes (US equivalent, par. 35), which literally constitutes a varying width, to one of ordinary skill. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the argument concerning the “raised pattern” limitation, this refers to amended claim language which is lacking antecedent basis in the specification and is addressed in the above Office Action. Berger clearly teaches a measuring electrode that has a raised pattern along a side facing the other measuring electrode (12 or 13, Fig. 2-4) as in the amended claims 14, 15.

Regarding the argument that Becker’s electrodes “may or may not” be parallel and “may be interdigitated” (Remarks, p. 6), the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

The rest of the arguments concern a general allegation of patentability that the secondary references do not make up the deficiencies of the primary reference, without

Art Unit: 2831

specifically pointing out how the language of the claims patentably distinguishes them from the references.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS F. VALONE whose telephone number is (571)272-8896. The examiner can normally be reached on Tu-W-Th, 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2831

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/  
Supervisory Patent Examiner, Art Unit 2831

/T. F. V./  
Examiner, Art Unit 2831

Thomas Valone  
Patent Examiner  
Art Unit 2831  
571-272-8896